

Applicant: Samuel Weaver, et al.  
Application No.: 09/658,158  
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APPENDIX A  
MARKED-UP PARAGRAPHS AS  
REPLACED IN PRELIMINARY AMENDMENT

**The paragraph at p. 5, ll. 12-27 has been amended as follows:**

The general functionality of one optical wavelength router that can be used with the embodiments of the invention is described in detail in the copending, commonly assigned United States Patent Application, filed November 16, 1999 and assigned Serial No.

[09/422,061] 09/442,061, entitled "Wavelength Router," which is herein incorporated by reference for all purposes. As described therein, such an optical wavelength router accepts light having a plurality of spectral bands at an input port and selectively directs subsets of the spectral bands to desired ones of a plurality of output ports. As used herein, the terms "input port" and "output port" are intended to have broad meanings. At the broadest, a port is defined by a point where light enters or leaves the optical router. For example, the input (or output) port could be the location of a light source (or detector) or the location of the downstream end of an input fiber (or the upstream end of an output fiber). The routing geometries described below are independent of the wavelength of the optical signal. Accordingly, they are used by themselves in some embodiments, while in other embodiments they are used in combination with a dispersive element (such as described in Appl. No. [09/422,061] 09/442,061) for optical signals multiplexed with various wavelength components.

**The paragraph at p. 6, l. 19 - p. 7, l. 6 has been amended as follows:**

In embodiments of the invention, the optical signals are routed with steering mirrors that are displaced linearly with actuators, sometimes in combination with fixed reflective surfaces. Such linear displacement is preferably in a direction perpendicular ("plunger configuration") or parallel ("slider configuration") to the plane in which the reflective surface of the mirror lies, although more generally the invention encompasses linear translation of a steering mirror in any direction. Various technologies may be used to drive the linear translators. Without limitation, examples of appropriate driving technologies include the use of piezoelectric actuator stacks, electrorestrictive actuator stacks, micro-electromechanical-system ("MEMS") actuator stacks, and MEMS linear translators. Linear translation of mirrors avoids the introduction of tilt into propagating wavefronts and can be implemented with fewer

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actuators than required for tilting steering mirrors. In the case of the slider configuration, the amount of translation is noncritical, permitting increased error tolerance without sacrificing the precision of the router. These advantages reduce the required fabrication cost, reduce coupling losses, and improve the robustness of router assemblies when compared with tilting steering mirrors. In various embodiments, the routing geometries of the invention are coupled with additional optical elements, such as focusing lenses, gradient index lenses, and/or diffraction gratings); an example of how such additional elements may be used in combination with the routing geometries is illustrated in Appl. No. [09/422,061] 09/442,061, although other combinations will be apparent to those of skill in the art upon reading this disclosure.

Assistant Commissioner for Patents  
Washington, D.C. 20231

Please stamp the date of receipt of the following document(s):

For: LINEAR OPTICAL BEAM TRANSLATOR FOR OPTICAL ROUTING

1. Transmittal Page
2. Third Information Disclosure Statement (including copy of Search/Examination Report and 5 cited refs)

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